AVIAN INFLUENZA UPDATE

THE REAL FACTS

PREPARATION SPEEDING UP

- At least 12 nations worldwide reported outbreaks over the past 3 weeks **(21 Feb)**
- Virus found in domestic cats **(Austria)**
  - To date, no human case has been linked to exposure to a diseased cat. No outbreaks in domestic cats have been reported
  - Still concerning

PREPARATION SPEEDING UP

- SPRING!
  - Beginning of worldwide bird migration
- Some mutations have been detected in human viruses isolated in 2005 and, most recently, in one virus isolated from a fatal case in the January 2006 outbreak in Turkey
  - There is no evidence, at present, from any outbreak site that the virus has increased its ability to spread easily from one person to another.

US PREPARATION

- FDA Initiative Helps Expedite Development of Seasonal and Pandemic Flu Vaccines **(March 2, 2006)**
  - DA aims to facilitate manufacturers in increasing the number of doses to ensure that enough influenza vaccine is available to vaccinate each person in the at-risk population

US PREPARATION

- FDA Approves New Laboratory Test To Detect Human Infections With Avian Influenza A/H5 Viruses **(Feb. 3, 2006)**
  - The product approved today is called the Influenza A/H5 (Asian lineage) Virus Real-time RT-PCR Primer and Probe Set.
  - The test provides preliminary results on suspected H5 influenza samples within four hours once a sample arrives at the lab and testing begins. ****TIMING IS CRITICAL** **

US PREPARATION

- HHS orders drugs to treat 14 million in flu pandemic
  - The Department of Health and Human Services (HHS) has ordered 12.4 million courses of oseltamivir (Tamiflu) from Roche
  - 1.75 million courses of zanamivir (Relenza) from GlaxoSmithKline

US PREPARATION

- To encourage producers to report sick birds, APHIS conducts an outreach campaign called "Biosecurity for the Birds."
- USDA works closely with the industry to randomly test commercial flocks as well as testing birds that show signs of illness.
- APHIS also maintains an AI vaccine supply for poultry that can be used to create a buffer around an identified area, in the event of a large outbreak among poultry

US PREPARATION (The Department of the Interior)

- The global spread of H5N1 increases the likelihood that it will eventually be detected in North America
- There are a number of pathways through which the virus could be brought to this continent
- Introduction by wild migratory birds is one possible pathway that the U.S. Department of Agriculture and the Department of the Interior are working together to address.

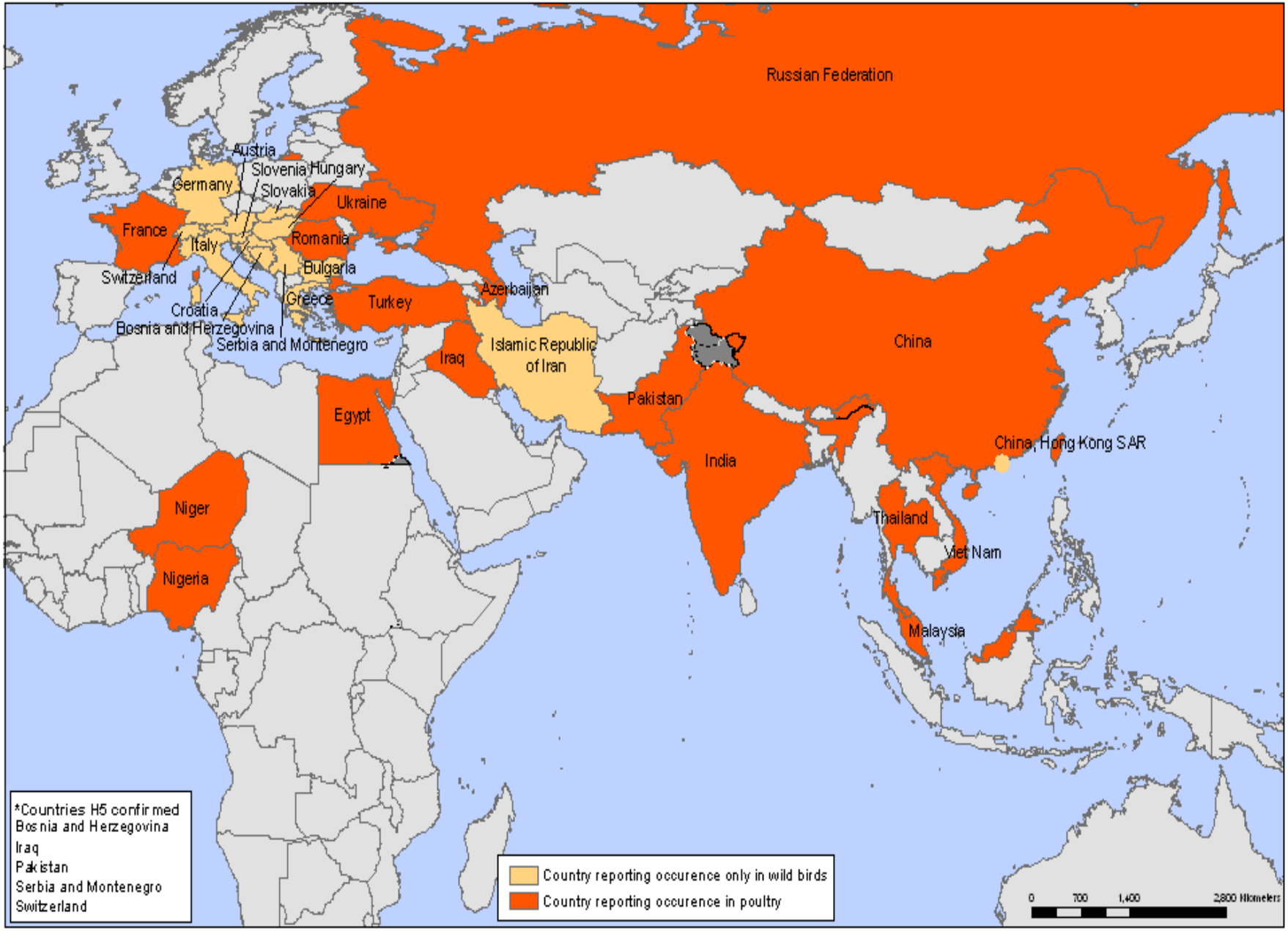
THE STATS

Country	2003		2004		2005		2006		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Cambodia	0	0	0	0	4	4	0	0	4	4
China	0	0	0	0	8	5	7	4	15	9
Indonesia	0	0	0	0	17	11	10	9	27	20
Iraq	0	0	0	0	0	0	2	2	2	2
Thailand	0	0	17	12	5	2	0	0	22	14
Turkey	0	0	0	0	0	0	12	4	12	4
Viet Nam	3	3	29	20	61	19	0	0	93	42
Total	3	3	46	32	95	41	31	19*	175	95

Cumulative Number of Confirmed Human Cases of Avian Influenza * 61% A/(H5N1) Reported to WHO 6 March 2006

Countries reporting confirmed occurence of H5N1* avian influenza in poultry and wild birds since January 2006

Status as of 6 March 2006



World Health Organization

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Organisation for Animal Health (OIE)
Map Production: Public Health Mapping and GIS
Communicable Diseases (CDS) World Health Organization

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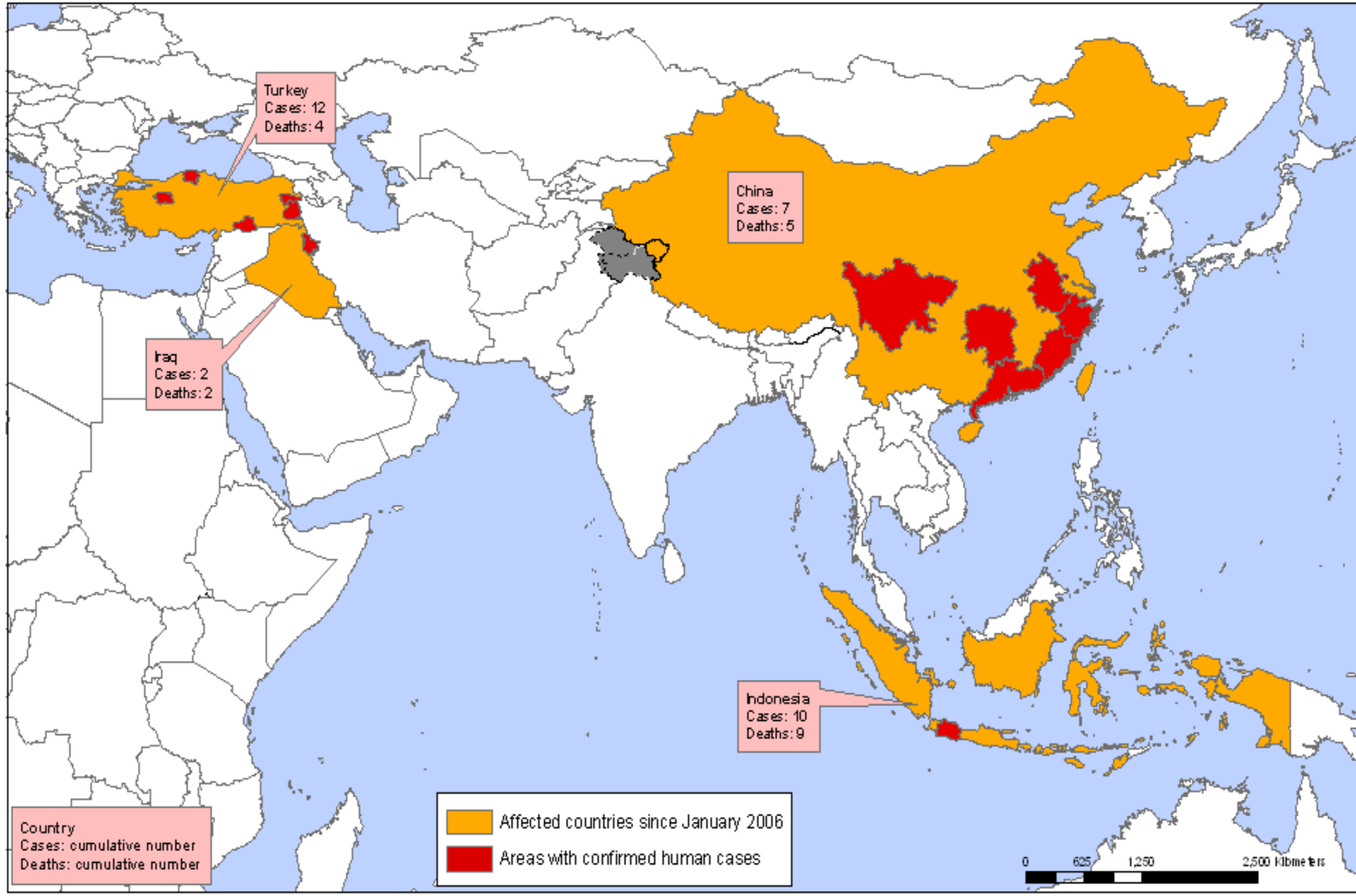
Affected countries with confirmed human cases of H5N1 avian influenza since January 2006

Status as of 8 March 2006



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MILITARY IMPLICATIONS

- Iraq said on Tuesday **(28 Feb 2006)** it was making checks for 3 suspected human cases of bird flu Baghdad and one in the north eastern province of Dayala. "There are 3 suspected cases in Baghdad and one in the town of Kefry, in Dayala

STATE PREPARATIONS

March 9 Sioux Falls, SD	**March 21 Raleigh, NC**
March 9 Bismarck, ND	**March 23 Virgin Islands**
March 10 Cheyenne, WY	**March 23 Richmond, VA**
March 17 Pittsburgh, PA	**March 23 West Lafayette, IN**
March 17 Chicago, IL	**March 24 San Juan, PR**
March 15 Madison, WI	**March 24 Denver, CO**
March 20 Washington, DC	**March 24 Utah**

LOCAL PREPARATION

- 23 March, 0900-1100, CDR's Conf Room, for the EACH Pandemic table top exercise
- April 3, EPCDPH: University of Pittsburg to view a live demonstration of the RODS (Realtime Outbreak and Disease Surveillance) Syndromic surveillance system

LOCAL PREPARATION

- March 24, Human Services' Assistant Secretary of Health, will join Governor Bill Owens and many other state and local leaders for Colorado's Pandemic Readiness and Emergency Planning Conference

PATHOGENICITY

- Mortality range is 50-75% depending on the country
- Turkey seems to have the best survival rate
  - Early recognition and intervention
- Worldwide mortality rates vary from 7-240 million

PATHOGENICITY

Age Groups

- Young ***
- Some elderly
- Prediction mimics 1918 Spanish flu
  - **18-30 year olds**

CYTOKINE STORM

- An excessive immune reaction appears to be the fatal factor in patients who die of SARS
- Michael Osterholm, says, ”Everything that we’re seeing in the virus-host interaction in Southeast Asia says cytokine storm.”
- Cytokine storms explain why the Spanish Flu pandemic killed so many young healthy people. Their immune systems were strong enough to unleash a cytokine storm and kill them. This bug in our immune system (perhaps it’s a feature?) seems to be a feature in the deaths of humans in Asia from bird flu.

CYTOKINE STORM

- Respiratory pathology is due to the activation of pro-inflammatory cytokine cascades in the lungs, leading to pulmonary capillary leak and pulmonary edema. Severe cases may result in acute pulmonary edema and respiratory failure

CYTOKINE STORM

- Normally, when the lungs are under attack from a virus, the body's T-cells are activated. These migrate to the lungs to attack the microbes but they also initiate a second immune system attack called a "cytokine storm". This surge of chemicals causes inflammation and when severe can seriously harm or even kill the patient

BAD NEWS

- Sudden rapid spread among domestic birds
- Multiple countries within 3 weeks time
- Infected cat – implications?
- Spring migration about to begin
- Public awareness and concern significantly increased

GOOD NEWS

- Virus has not yet mutated for easy human to human transmission – we still have time
- Federal government beginning to act
- State and local governments are talking and planning
- Small steps being made in recognition and treatment – primarily Turkey